CTEH®

THE SCIENCE OF READY℠

INTERCONTINENTAL TERMINALS

CONTINENTAL TANK FIRE

Deer Park, TX

March 18, 2019

Project #111356

1.0 Introduction

On March 17, 2019 Intercontinental Terminals Company (ITC) requested that CTEH® conduct air monitoring in the surrounding community after a tank fire at the Deer Park, TX terminal. CTEH® arrived on-site on March 17, 2019 and began air monitoring operations. Activities were comprised of real-time air monitoring.

This report summarizes air monitoring data collected from March 17, 2019 17:02 CDT to March 18, 2019 7:42 CDT.

2.0 Air Monitoring and Sampling Methods

CTEH® developed and implemented an air sampling and analysis work plan (SAP) to document and quantify the release of fugitive emissions from the fire. All instrumentation was calibrated at least once per day or per manufacturer's recommendations. Target analytes were measured as benzene, percent of the lower explosive limit (%LEL), Naphtha, 2.5-Micron particulate matter ($PM_{2.5}$), toluene, volatile organic compounds (VOCs), and Xylene using handheld instruments such as RAE Systems MultiRAEs, TSI SidePak™ AM510 Aerosol Monitors and Gastec GV-100 pumps with chemical-specific colorimetric detection tubes.

Hand-held air monitoring consisted of roaming air monitoring in the surrounding community. All hand-held air monitoring was conducted in the breathing zone.

3.0 Air Monitoring Results

Attachment A depicts the site location and hand-held monitoring locations for this reporting period.

Table 1 summarizes the results for community hand-held air monitoring readings.

Table 1: Community Hand-Held Real-Time Air Monitoring Results

Analyte	Instrument	Num Readings	Num Detections	Range[1]
Benzene	Gastec #121L	6	0	< 0.05 ppm
	UltraRAE	64	0	< 0.5 ppm
Formaldehyde	Gastec #91L	1	0	< 0.05 ppm
Hexane	Gastec #102L	2	0	< 1 ppm
Hydrogen Sulfide	Gastec #4LL	3	0	< 0.1 ppm
	MultiRAE	53	0	< 0.1 ppm
LEL	MultiRAE	109	0	< 1 %
Naphtha	Gastec #106	21	0	< 0.1 mg/L
Naphthalene	Gastec #60	14	0	< 0.1 ppm

Analyte	Instrument	Num Readings	Num Detections	Range[1]
Nitrogen Dioxide	Gastec #9L	6	0	< 0.1 ppm
	MultiRAE	32	0	< 0.1 ppm
Oxygen	MultiRAE	25	25	20.9 - 20.9 %
PM2.5	AM510	44	44	0.007 - 0.043 mg/m3
Sulfur Dioxide	MultiRAE	21	0	< 0.1 ppm
Toluene	Gastec #122L	12	0	< 0.5 ppm
VOCs	MultiRAE	137	1	0.1 ppm
Xylene	Gastec #123L	24	0	< 1 ppm

[1]Maximum detections preceded by the "<" symbol are considered non-detections below the limit of detection (LoD) value to the right.

No detections during this reporting period exceeded the action levels as outline in the CTEH® SAP. One detection of VOCs was recorded approximately 5.5 miles WSW from the fire.

4.0 Weather Conditions

Attachment B contains a wind rose depicting wind speed and direction for this reporting period. Data was acquired from the Texas Commission on Environmental Quality (TCEQ) Lynchburg Ferry meteorological station located on Tidal Road approximately 2 mi NNE of the fire.

Attachment A

CTEH Monitoring Locations

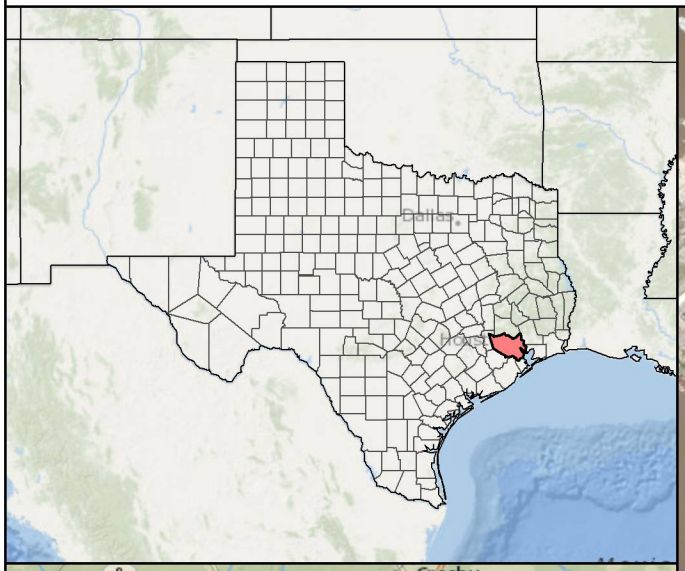
CTEH®
THE SCIENCE OF READY™

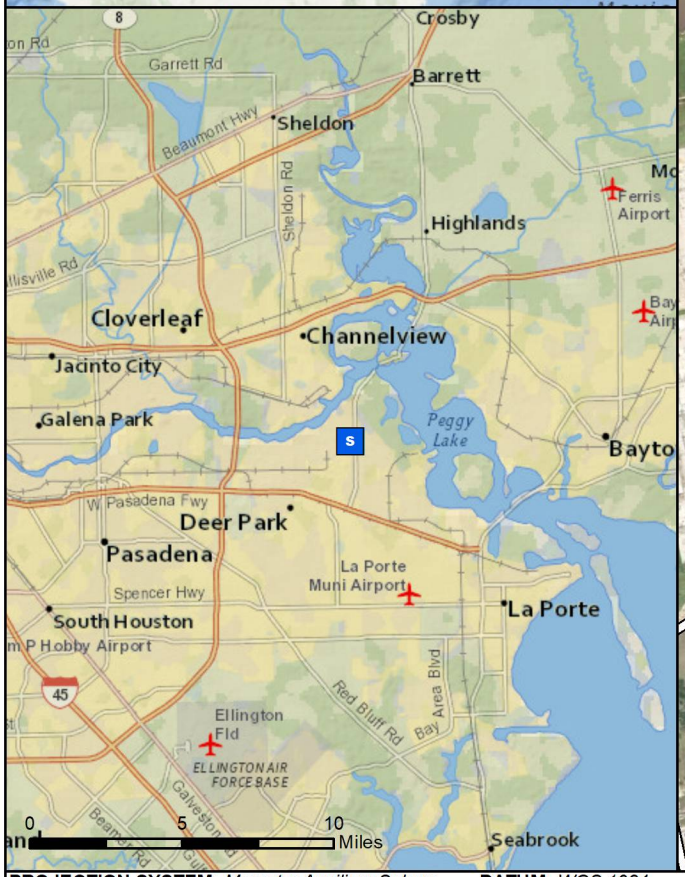
Incident Location

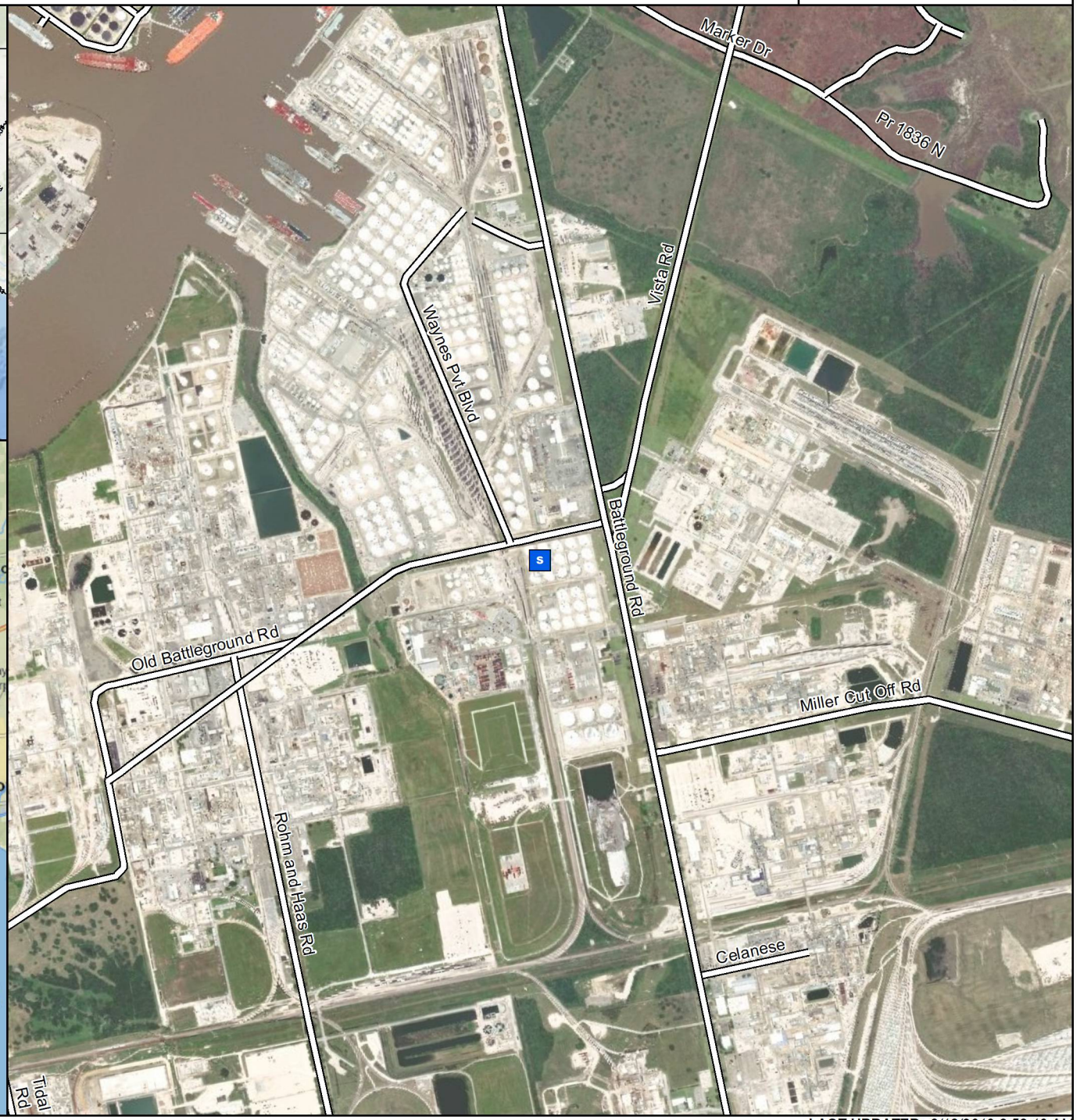
ITC Tank Fire

0 0.25 0.5 1 Miles

Project: 111356
Client: ITC
City: Deerpark, TX
County: Harris







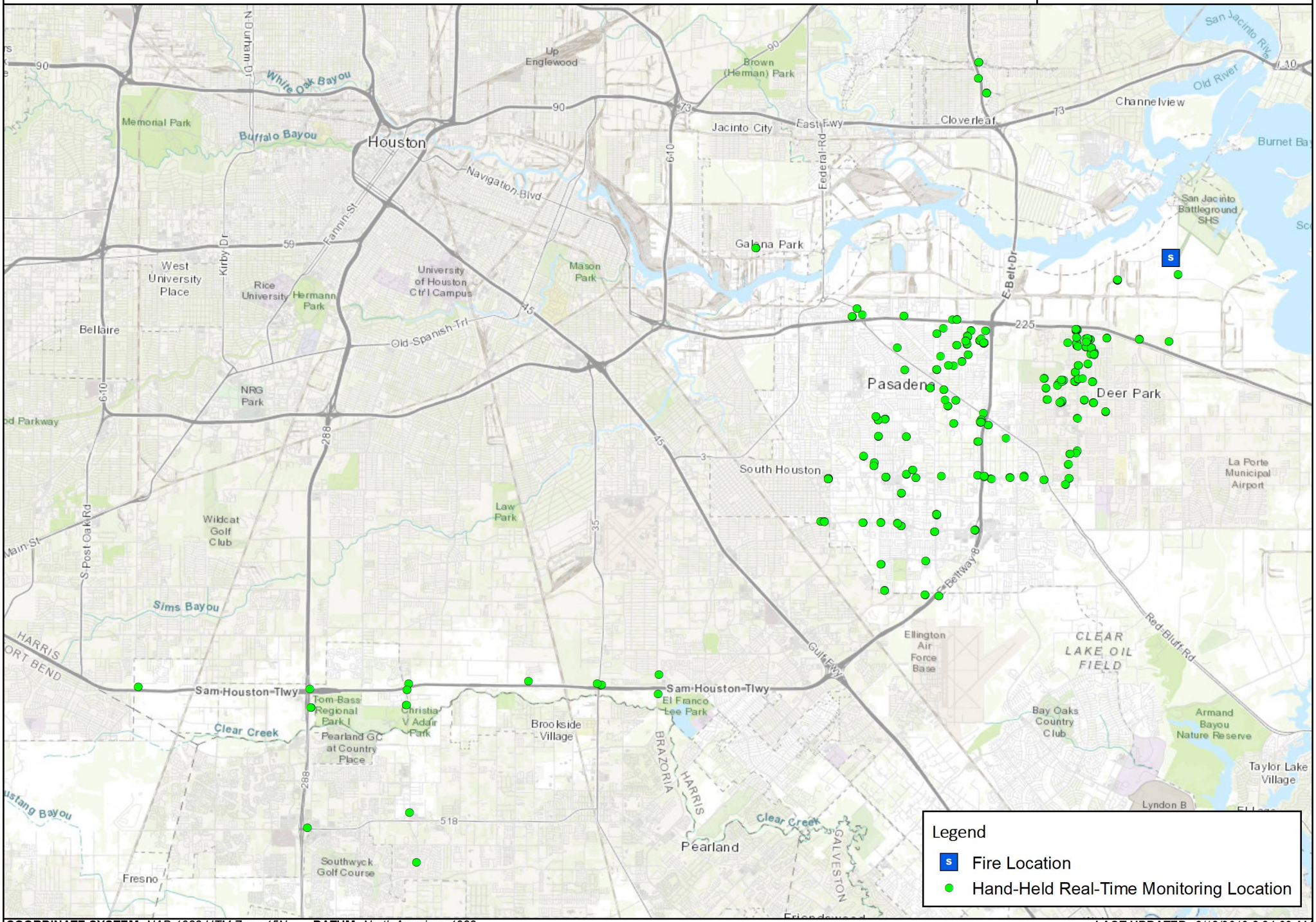
PROJECTION SYSTEM: *Mercator Auxiliary Sphere* **DATUM:** *WGS 1984* **LAST UPDATED:** *3/18/2019 2:58:19 AM*

Hand-Held Real-Time Monitoring Locations

ITC Tank Fire Deerpark, TX

0 2.5 5 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



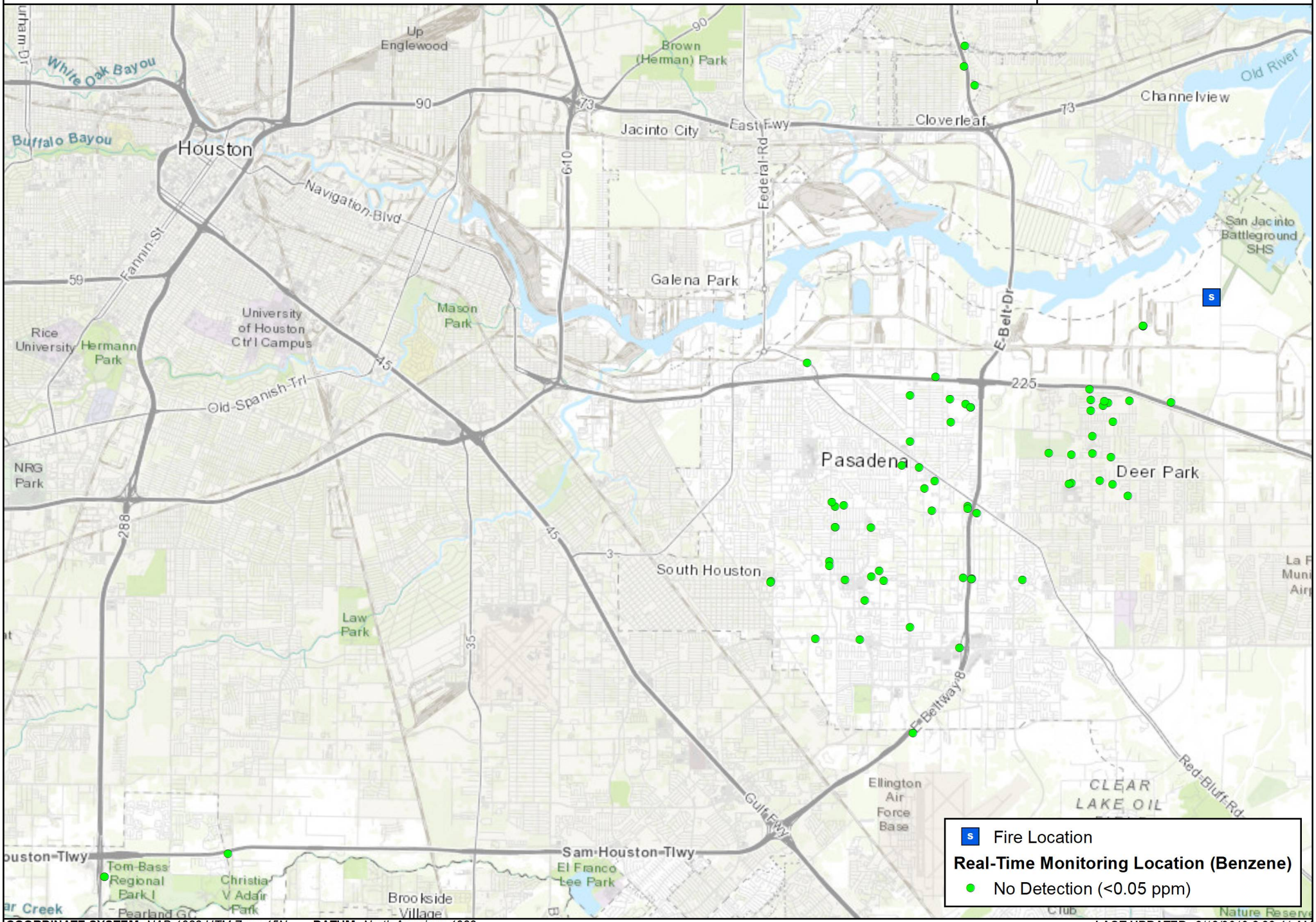
COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *3/18/2019 8:24:09 AM*

Hand-Held Real-Time Monitoring Locations (Benzene)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



Fire Location

Real-Time Monitoring Location (Benzene)

No Detection (<0.05 ppm)

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983*

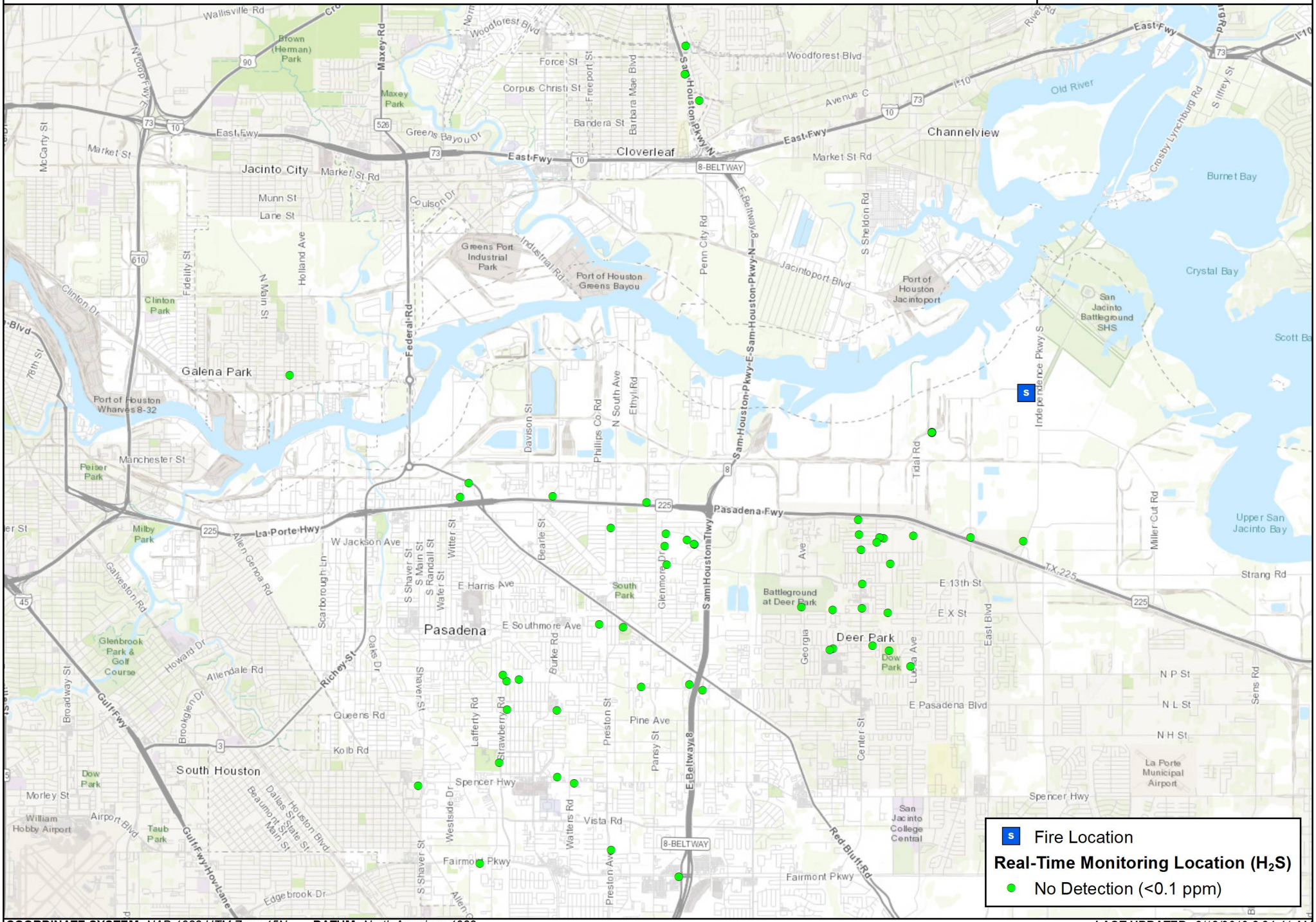
LAST UPDATED: *3/18/2019 8:23:41 AM*

Hand-Held Real-Time Monitoring Locations (H_2S)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983*

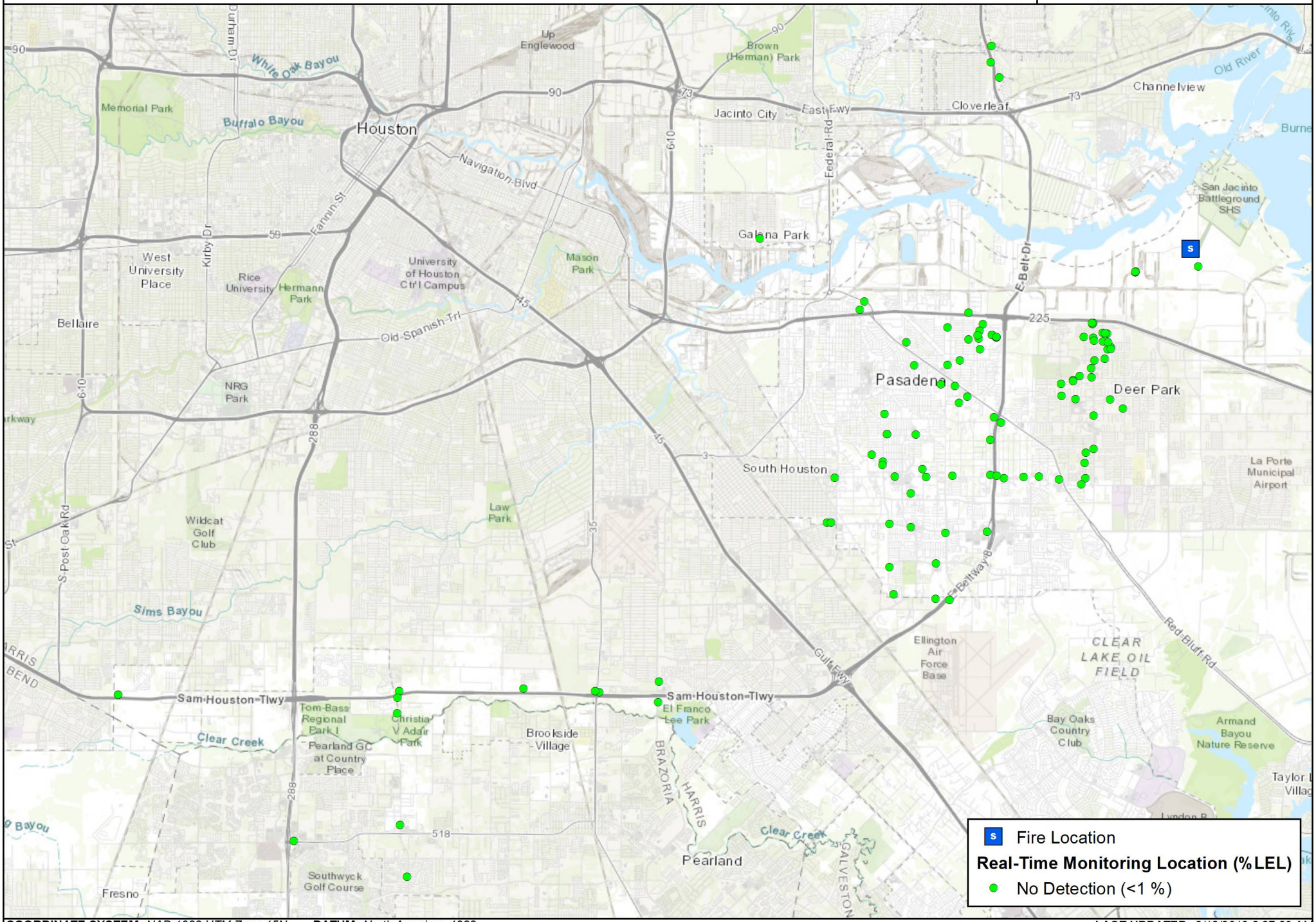
LAST UPDATED: *3/18/2019 8:24:41 AM*

Hand-Held Real-Time Monitoring Locations (% LEL)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



Fire Location

Real-Time Monitoring Location (%LEL)

No Detection (<1 %)

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983*

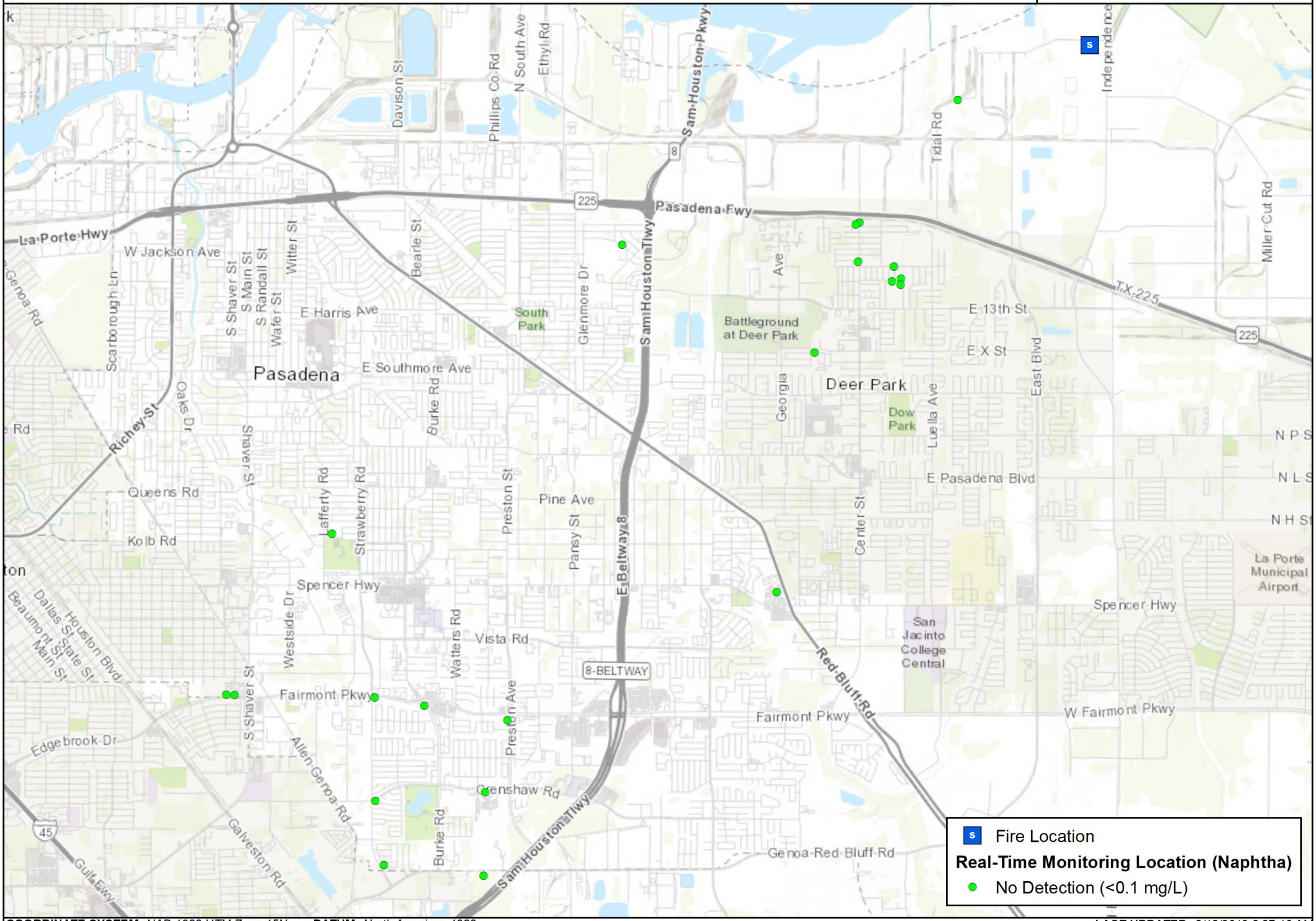
LAST UPDATED: *3/18/2019 8:27:39 AM*

Hand-Held Real-Time Monitoring Locations (Naphtha)

ITC Tank Fire Deerpark, TX

0 1 2 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



Fire Location

Real-Time Monitoring Location (Naphtha)

- No Detection (<0.1 mg/L)

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983*

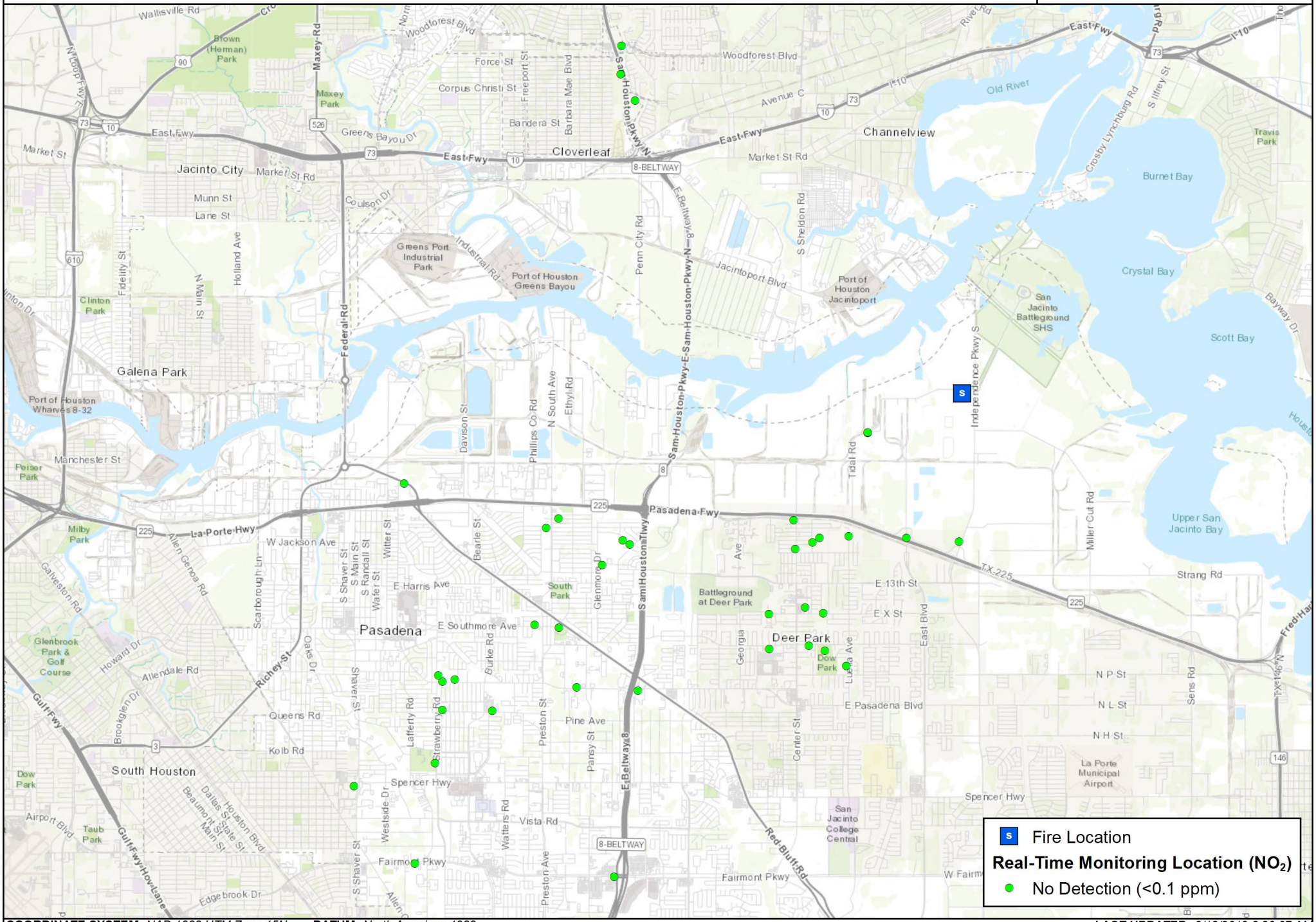
LAST UPDATED: *3/18/2019 8:27:16 AM*

Hand-Held Real-Time Monitoring Locations (NO_2)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983*

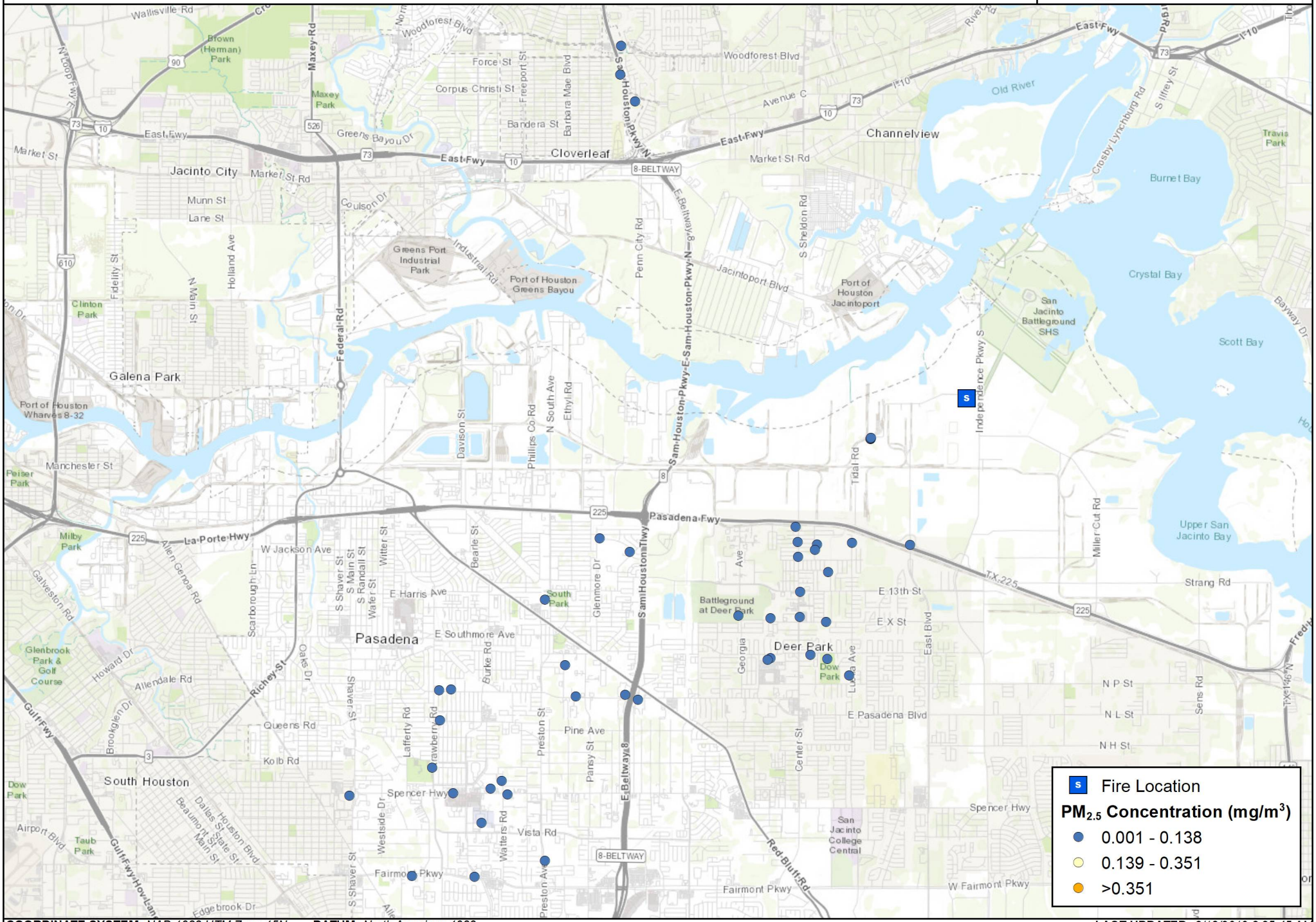
LAST UPDATED: *3/18/2019 8:26:07 AM*

Hand-Held Real-Time Monitoring Locations ($PM_{2.5}$)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983*

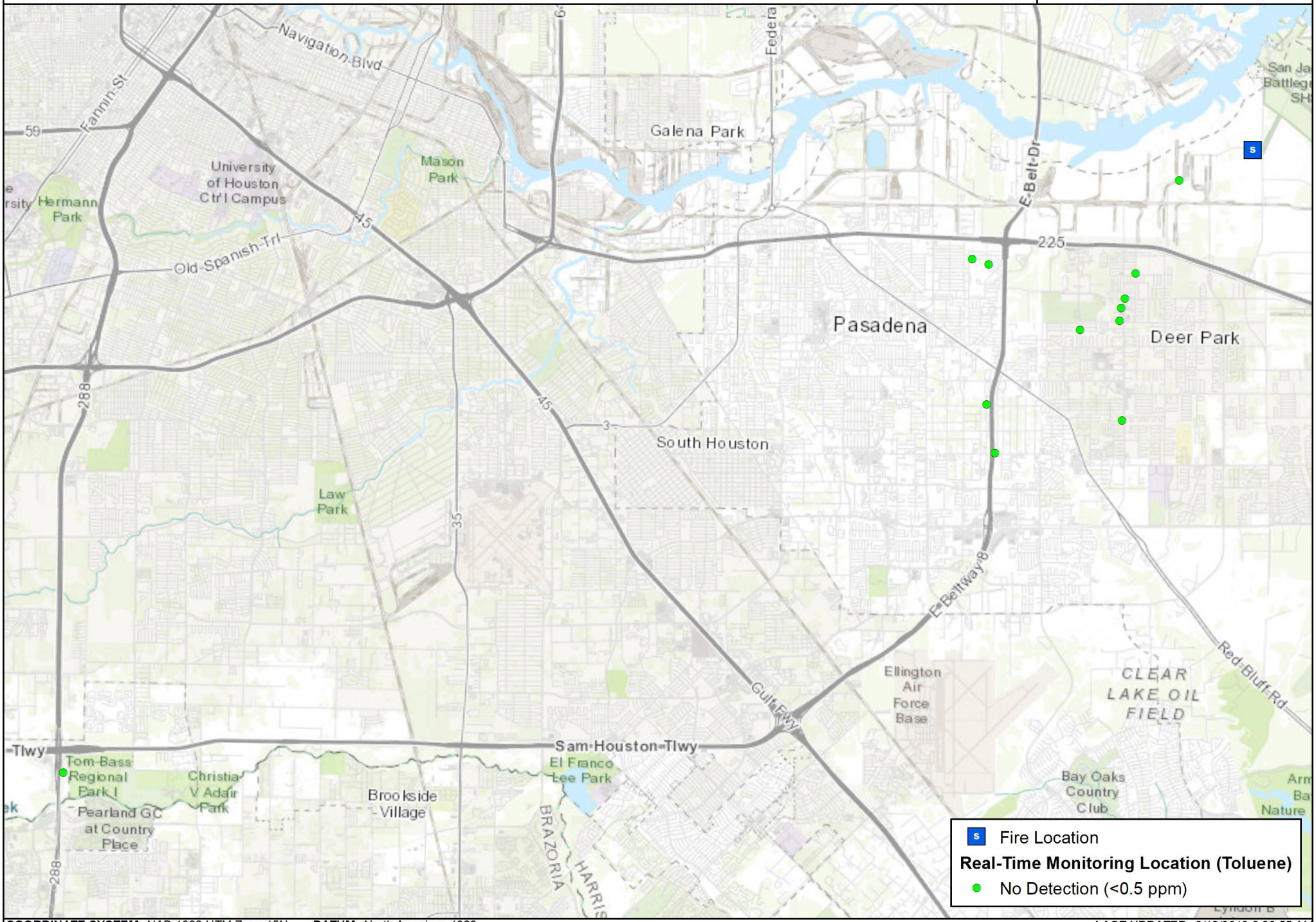
LAST UPDATED: *3/18/2019 8:25:45 AM*

Hand-Held Real-Time Monitoring Locations (Toluene)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983*

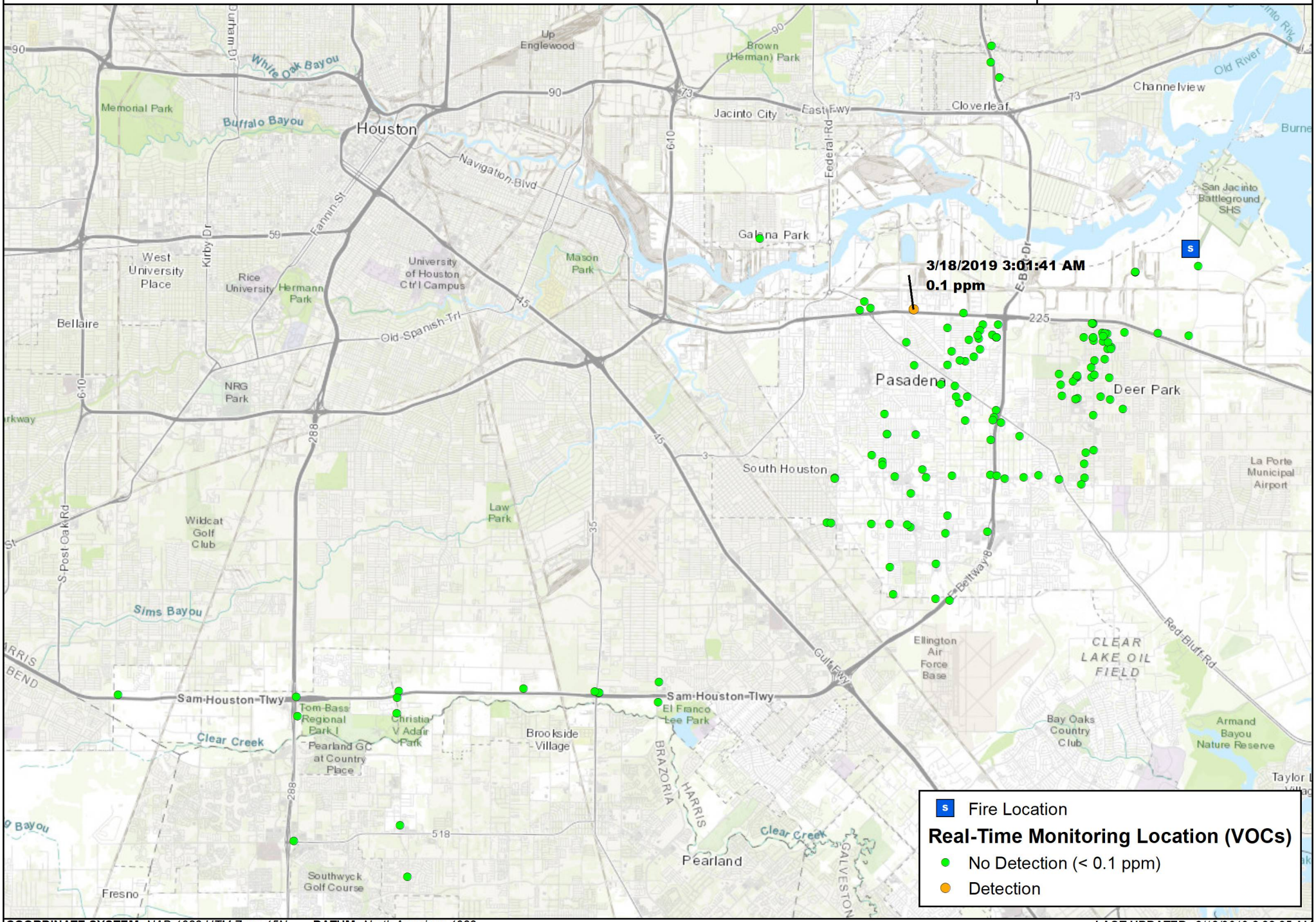
LAST UPDATED: *3/18/2019 8:26:55 AM*

Hand-Held Real-Time Monitoring Locations (VOCs)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



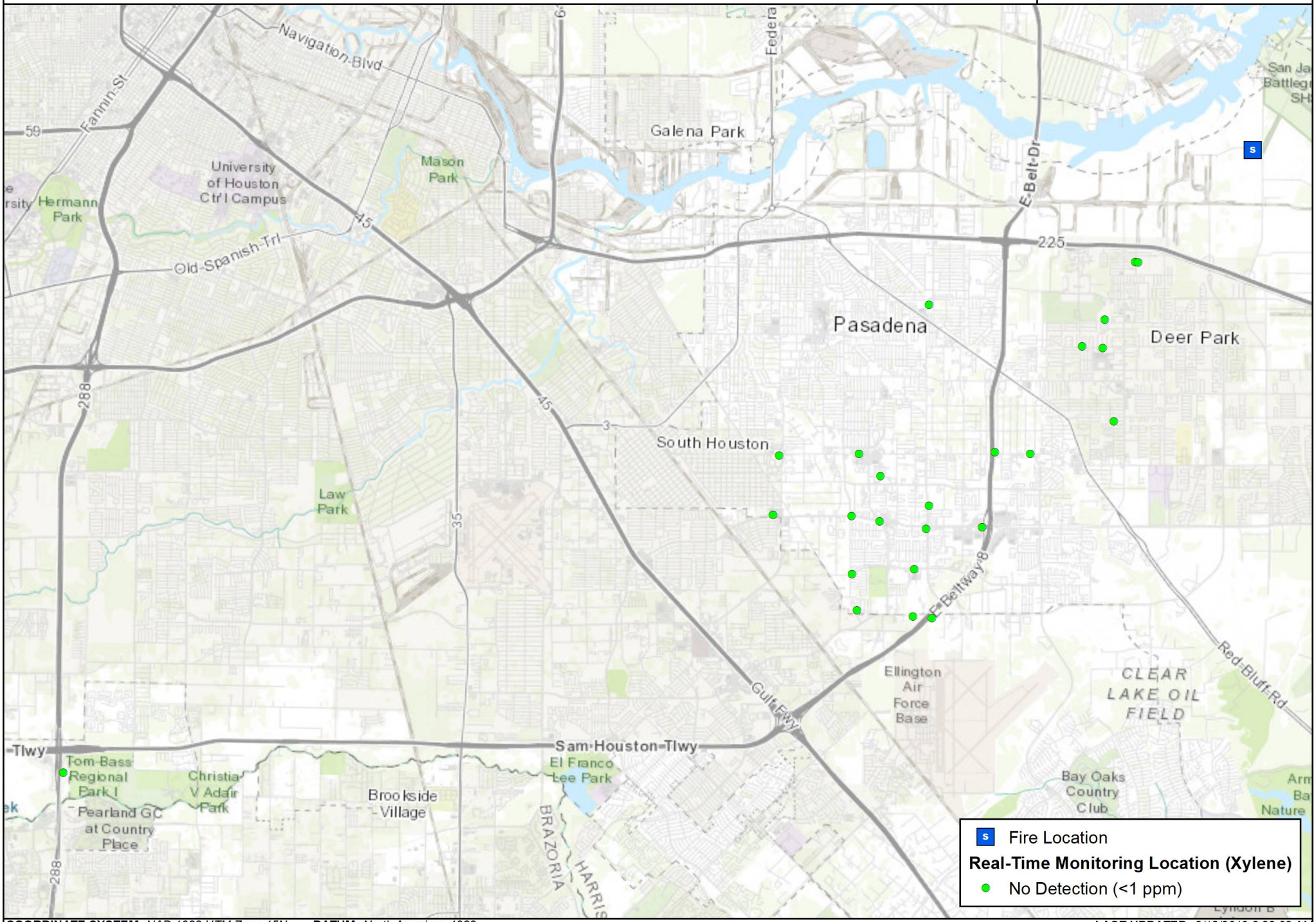
COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *3/18/2019 8:28:25 AM*

Hand-Held Real-Time Monitoring Locations (Xylene)

ITC Tank Fire Deerpark, TX

0 1 2 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983*

LAST UPDATED: *3/18/2019 8:28:02 AM*

Attachment B

Meteorological Conditions

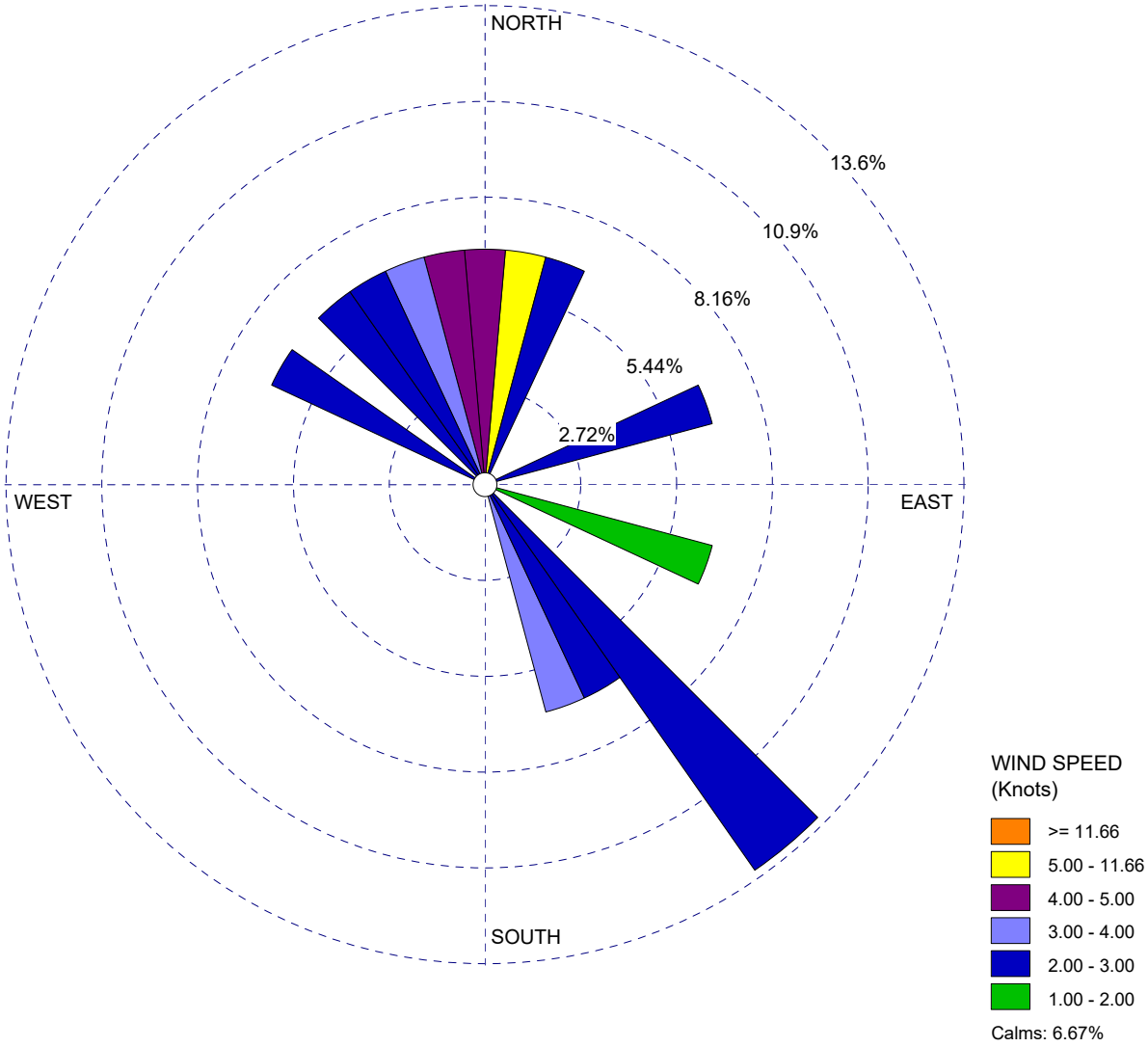
CTEH®
THE SCIENCE OF READY™

WIND ROSE PLOT:

Station #Lynchburg Ferry

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 3/17/2019 - 16:00** **End Date: 3/18/2019 - 06:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **6.67%**	TOTAL COUNT: **15 hrs.**	
	AVG. WIND SPEED: **2.40 Knots**	DATE: **3/18/2019**	PROJECT NO.: **111356**